

① a) 3-hexene

b) 3-propyl-2-heptene

c) 4-ethyl-2,3-dimethyl-4-octene

d) 2-ethyl-1-butene

e) 2,3-diethyl-4,6-dimethyl-1-octene

f) 4,4-dimethyl-2-pentene

g) 3-ethyl-5-methyl-1-hexene

h) 5-ethyl-2-methyl-3-octene

i) 2-chloro-2-butene

j) 4-ethyl-7-fluoro-2-octene

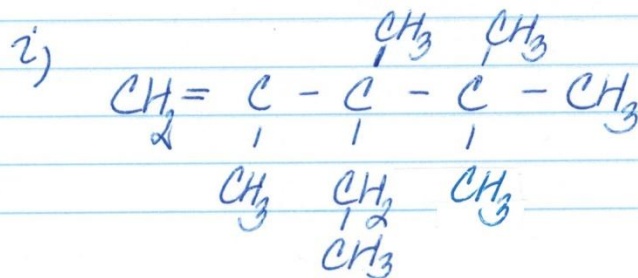
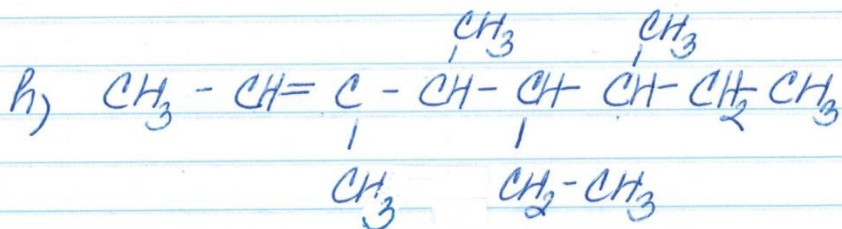
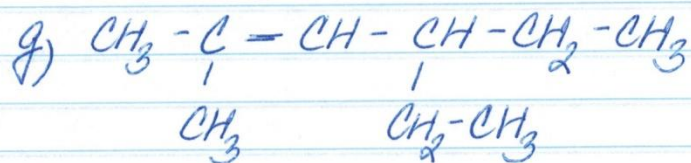
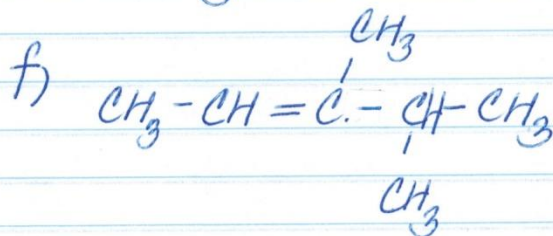
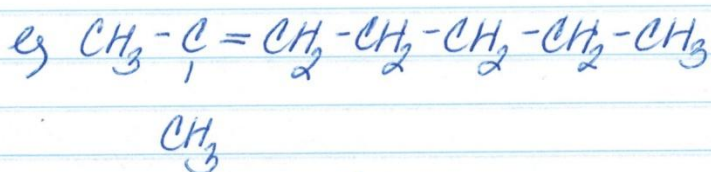
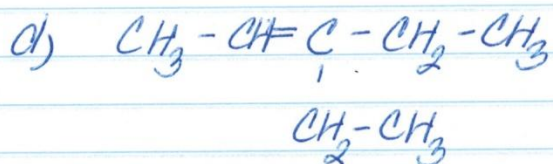
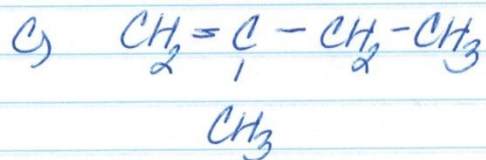
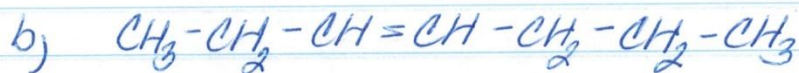
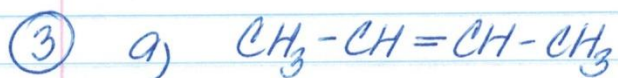
k) 2-bromo-5-chloro-4,4-dimethyl-2-pentene

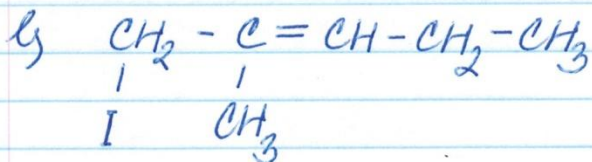
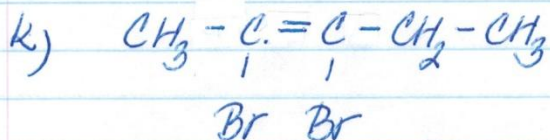
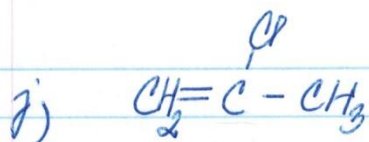
② a) 2-pentene

b) 3,4-dimethyl-1-pentene

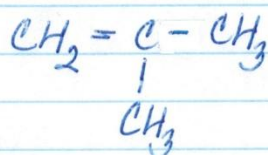
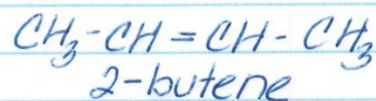
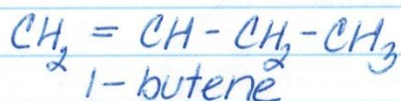
c) 2,3-dimethyl-2-butene

d) 5-ethyl-2,4,7-trimethyl-3-propyl-2-octene



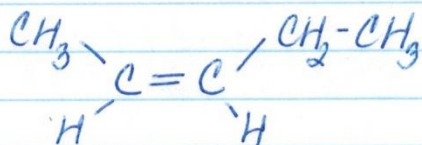


④

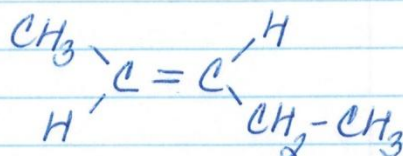


2-methyl-1-propene
(2-methylpropene)

⑤

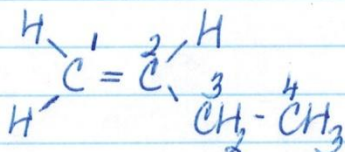


cis-2-pentene



trans-2-pentene

⑥



Cis-trans isomers occur when different groups of atoms are arranged around the double bond.

Two hydrogen atoms are attached to carbon 1 - they are the same group. Thus, 1-butene can't have cis-trans isomers.

⑦

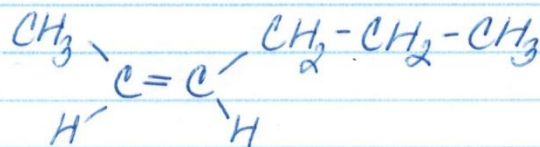
All isomers have different physical and chemical properties, including cis-trans isomers.

Hilroy

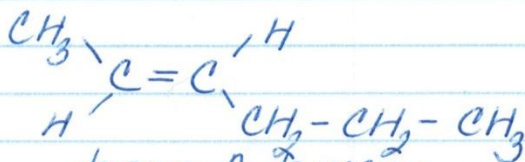
These properties can be investigated in the Laboratory.

The simplest way to determine between cis and trans isomers in the Lab is to evaluate their boiling points and compare to reference data.

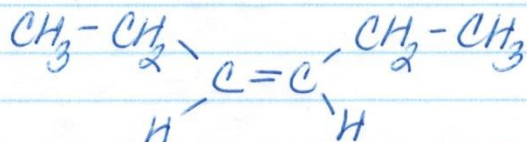
⑧ C_6H_{12}



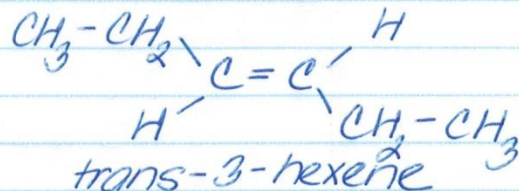
cis-2-hexene



trans-2-hexene



cis-3-hexene



trans-3-hexene